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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/527,161

11/22/2005

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EXAMINER

SONG, HOON K

ART UNIT

PAPER NUMBER

2882

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

12/28/2006

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/527,161

Applicant(s)

TAKAHASHI ET AL.

Examiner

Hoon Song

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-9 and 13-15 is/are rejected.
- 7) ☒ Claim(s) 3,4,10-12 and 16 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

Claim Objections

Claim 8 is objected to because of the following informalities:

In claim 8 at line 3, "the plurality" lack proper antecedent basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5-6, 8-9 and 13-15 rejected under 35 U.S.C. 102(b) as being anticipated by Harada et al. (US 2001/0008552A1).

Regarding claim 1, Harada teaches an X-ray generating device comprising:

a high voltage transformer for boosting an AC power voltage including a plurality of primary windings (16) connected in parallel to an AC power supply (11), at least one iron core, and a plurality of secondary windings (19) respectively corresponding to the primary windings;

a plurality of high voltage rectifier circuits (20) which are connected to outputs of the plurality of secondary windings (19) of the high voltage transformer and converts the outputs into DC outputs, connects the DC in series, and grounds the midpoints of the series connection at a neutral point;

and an X-ray tube (21) receiving a predetermined tube voltage through a cathode and an anode thereof, respectively connected to a DC output negative terminal and a DC output positive terminal on both ends of the plurality of high voltage rectifier circuits,

wherein a ratio obtained by dividing a plurality of values of currents respectively flowing through the plurality of primary windings each other at an identical time point is always kept at a predetermined ratio while the tube voltage is applied (Note: the functional recitations of "a ratio obtained by dividing a plurality of values of currents respectively flowing through the plurality of primary windings each other at an identical time point is always kept at a predetermined ratio while the tube voltage is applied" have not been given patentable weight because they are directed to the operation of the apparatus and do not structurally distinguish the apparatus over the prior art. See MPEP 21 14. Since Harada's device capable to perform the claimed functional limitation, Harada anticipate the claim)

Regarding claim 5, Harada teaches the AC power supply includes a DC power supply and an inverter (14) for converting a current from the DC power supply into a high-frequency AC current.

Regarding claim 6, Harada teaches the X-ray tube is a metal X-ray tube (target) having a metallic part in a substantial center and the metallic part is connected to the grounded neutral point (figure 1).

Regarding claim 8, Harada teaches current addition means formed by commonly winding two or more conductors among the plurality of conductors respectively

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connecting the plural primary windings and the AC power supply around a ferromagnetic core having a large permeability to keep the ratio between the plural current values are kept at a predetermined ratio (figure 1).

Regarding claim 9, Harada teaches the core has a high AL value and gives an inductance equivalent to or larger than a leakage inductance of the high voltage transformer (figure 1).

Regarding claim 13, Harada teaches an X-ray CT apparatus comprising:

an X-ray generating device according to claim 1 (figure 1); an X-ray detector arranged opposite to the X-ray tube; a rotative circular plate holding the X-ray tube and the X-ray detector, and being driven to rotate around an object to be examined; and image reconstructing means for reconstructing a tomogram of the object as an image on the basis of the strength of X-rays detected by the X-ray detector (figure 2).

Regarding claim 14, Harada teaches an X-ray CT apparatus comprising: an X-ray generating device according to claim 5; an X-ray detector arranged opposite to the X-ray tube; a rotative circular plate for holding the X-ray tube and the X-ray detector, and being driven to rotate around an object to be examined; and image reconstructing means for reconstructing a tomogram of the object as an image on the basis of the strength of X-rays detected by the X-ray detector (figure 1 and 2).

Regarding claim 15, Harada teaches an X-ray CT apparatus comprising: an X-ray generating device according to claim 7; an X-ray detector arranged opposite to the X-ray tube; a rotative circular plate for holding the X-ray tube and the X-ray detector, and being driven to rotate around an object to be examined; and image reconstructing

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means for reconstructing a tomogram of the object as an image on the basis of the strength of X-rays detected by the X-ray detector (figure 1 and 2).

Claims 1-2 and 5-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Hitachi Medical Corporation (JP5-307998).

Regarding claims 1-2 and 5-9, Hitachi medical corporation teaches an X-ray generating device comprising:

a high voltage transformer for boosting an AC power voltage including a plurality of primary windings (4a) connected in parallel to an AC power supply, at least one iron core, and a plurality of secondary windings (4b) respectively corresponding to the primary windings;

a plurality of high voltage rectifier circuits (7) which are connected to outputs of the plurality of secondary windings of the high voltage transformer and converts the outputs into DC outputs, connects the DC in series, and grounds the midpoints of the series connection at a neutral point;

and an X-ray tube (12) receiving a predetermined tube voltage through a cathode and an anode thereof, respectively connected to a DC output negative terminal and a DC output positive terminal on both ends of the plurality of high voltage rectifier circuits, wherein a ratio obtained by dividing a plurality of values of currents respectively flowing through the plurality of primary windings each other at an identical time point is always kept at a predetermined ratio while the tube voltage is applied .

wherein the predetermined ratio is 1 and the predetermined ratio is kept by waveform phase difference removing means which removes difference in waveform and phase

occurring between the plural currents respectively flowing through the plural primary windings (paragraph 26).

Allowable Subject Matter

Claims 3-4, 10-12 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 3-4, the prior art fails to teach the waveform phase difference removing means has a hollowed core made of a ferromagnetic material of large permeability, and a part of plural conductors connecting the primary windings and the AC power supply passes through or turns around the hollow, and differences in waveforms and phases are removed by mutually canceling magnetic fields generated due to the primary winding currents as claimed in claim 3.

Regarding claims 10-12 and 16, the prior art fail to teach waveform phase difference removing means which lowers the predetermined ratio to be smaller than 1 and removes differences in waveform and phase generated between the plural currents respectively flowing through the plurality of primary windings; and current addition means formed by commonly winding two or more conductors among the plural conductors respectively connecting the plurality of primary windings and the AC power supply around the ferromagnetic core having a large permeability, wherein the ratio between the plural current values is kept at a predetermined ratio by the waveform

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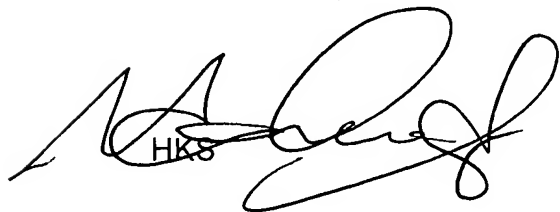
phase difference removing means and the current addition means as claimed in claim 10.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoon Song whose telephone number is (571) 272-2494. The examiner can normally be reached on 9:30 AM - 7 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on (571) 272 - 2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



HKS